☑003/019

OHASHI, et al., 10/806,338
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A ~~node switching~~ method of controlling ~~the execution~~ enablement/disablement of ~~for~~ I/O requests from plural host computers to a disk device, ~~so as to perform the switching to a node which is capable of executing said I/O requests, said node switching~~ said method comprising: ~~the steps of:~~

in said host computers,

transmitting access-right change commands to said disk device, ~~in advance,~~ said access-right change commands including one piece or plural pieces of information ~~resulting from causing~~ having I/O-enable/disable information and host identification information to correspond to each other in a one-to-one correspondence manner, said I/O-enable/disable information indicating whether or not said disk device will execute said I/O requests from said host computers, said host identification information ~~being designed for~~ identifying said respective host computers, and

issuing, to said disk device, said I/O requests to which said host computers have added said host identification information; and

in said disk device,

changing ~~in~~ a batch of said I/O-enable/disable information on each host-computer basis in accordance with said access-right change commands from said host computers, and ~~simultaneously~~ storing and

holding said I/O-enable/disable information access-right change

commandsin an access-right management table,

identifying said-request-source host computers in response to

said I/O requests from said host computers, and,

based on said host identification information and said I/O-

enable/disable information that said disk device has heldheld in said

access-right management table, determining to enable or disable

judging said execution enablement/disablement for said I/O requests to

be executed on each host-computer's node basis.

2. (Currently Amended) The node switching method according to Claim 1,

further comprising: the steps of:

in said host computers,

transmitting path information to said disk device, in advance,

said path information resulting from causing having said host

identification information and path identification information to

correspond to each other, said path identification information being

designed for identifying all of logical paths from said host computers to

said disk device, and

issuing said I/O requests to which said host computers have

added said path identification information; and

in said disk device,

storing and holding said path identification information

transmitted from said host computers,

extracting said path identification information from said I/O

requests transmitted from said host computers, extracting said host

identification information corresponding to said path identification

information stored and held, and ~~simultaneously~~ extracting said I/O-

enable/disable information with which said host identification

information extracted coincides, and

judging, using the extracted said I/O enable/disable information,

~~said execution enablement/disablement~~whether to enable/disable each

I/O request for said I/O requests on each host-computer's node basis.

3. (Currently Amended) The ~~node switching~~ method according to Claim 1,

~~further~~ comprising: ~~the steps of:~~

if an I/O-disable command is included in said I/O-enable/disable information

in said access-right change commands transmitted from said host computers,

then in said disk device,

extracting, from among said access-right change commands,

host identification information corresponding to said I/O-enable/disable

information with respect to all of I/O-disable commands included in

said same access-right change commands, and

updating I/O-enable/disable information for host identification

information into an I/O-disable state, said host identification information

coinciding with said host identification information extracted and being

stored and held in said disk device, and

if an I/O-enable command is included in said I/O-enable/disable information in

said access-right change commands transmitted from said host computers,

then in said disk device,

extracting, from among said access-right change commands,

host identification information corresponding to said I/O-enable/disable

information with respect to all of I/O-enable commands included in said

same access-right change commands, and

updating said I/O-enable/disable information for host

identification information into an I/O-enable state, said host

identification information coinciding with said host identification

information extracted and being stored and held in said disk device.

4. (Currently Amended) The node-switching method according to Claim 3,

wherein

said processing of updating said I/O-enable/disable information for said host

identification information into said I/O-enable state is kept waiting for all of I/Os to be

completed, and is executed after the completion of all of said I/Os, with said host

identification information being stored and held in said disk device, and all of said

I/Os being in processing in said host computers.

5. (Currently Amended) The node-switching method according to Claim 2,

wherein

said disk device is configured to include plural logical disks resulting from

logically dividing an assembly of disk drives,

said host computers,

transmitting said access-right change commands to said disk

device, in advance, said access-right change commands including one

piece or plural pieces of information resulting from causing having said

I/O-enable/disable information, said host identification information and

logical-disk identification information to correspond to each other, said

I/O-enable/disable information indicating whether or not said disk

device will execute said I/O requests from said host computers, said

host identification information being designed for identifying said

respective host computers, and said logical-disk identification

information being designed for identifying said logical disks, and

issuing, to said disk device, said I/O requests to which said host

computers have added said logical-disk identification information and

said path identification information;

said disk device,

changing in a batch of said I/O-enable/disable information on

each host-computer basis in accordance with said access-right change

commands from said host computers, and simultaneously storing and

holding said access-right change commands,

extracting said path identification information from said I/O

requests transmitted from said host computers, extracting said host

identification information corresponding to said path identification

information from said access-right change commands stored and held,

and extracting said I/O-enable/disable information for which said host

identification information extracted and logical-disk identification

information on logical disks selected as targets of said I/O requests

coincide with each other, and

 judging, using the extracted I/O-enable/disable information, ~~said~~

~~execution enablement/disablement~~whether to enable/disable each I/O

request for said I/O requests on each host-computer's node basis.

6. (Currently Amended) The ~~node switching~~ method according to Claim 5,

wherein said extraction of said I/O-enable/disable information comprising: ~~the steps~~

~~of:~~

 extracting said logical-disk identification information and said host

identification information from said access-right change commands, and

 extracting said I/O-enable/disable information whose logical-disk identification

information and host identification information coincide with said logical-disk

identification information and said host identification information extracted.

7. (Currently Amended) A ~~node switching~~ method of controlling ~~said~~

~~execution~~ enablement/disablement ~~for~~of I/O requests from plural host computers to

a disk device, ~~so as to perform the switching to a node which is capable of executing~~

~~said I/O requests, said node switching~~ said method comprising,

 wherein said host computers ~~possesses~~ possess plural application

processes, and wherein ~~;~~said application processes including: ~~includes the steps of:~~

 transmitting access-right change commands to said disk device,

 ~~in advance,~~ said access-right change commands including one piece

or plural pieces of information ~~resulting from causing~~ having I/O-

enable/disable information and application-process identification

information to correspond to each other in a one-to-one

correspondence manner, said I/O-enable/disable information indicating

whether or not said disk device will execute said I/O requests from said

application processes, said application-process identification

information ~~being designed for~~ identifying said respective application

processes, and,

issuing, to said disk device, said I/O requests to which said

application processes have added said application-process

identification information; and

said disk device including operations of: ~~includes the steps of:~~

changing ~~in~~ a batch of said I/O-enable/disable information on

each application-process basis in accordance with said access-right

change commands from said application processes, and

~~simultaneously~~ storing and holding said I/O-enable/disable information

in an access-right management table, ~~access-right change commands,~~

identifying ~~said~~ request-source application processes in

response to said I/O requests from said application processes, and,

based on said application-process identification information and

said I/O-enable/disable information ~~that said disk device has held, and~~

~~judging said execution enablement/disablement~~ held in said access-

right management table, determining whether to enable/disable ~~for~~

said I/O requests to be executed on each application-process's node

basis.

8. (Currently Amended) An information processing system configured to

control the execution enablement/disablement for of I/O requests from plural host

computers to a disk device, comprising: so as to perform the switching to a node

which is capable of executing said I/O requests,

each of said host computers including: comprising:

an I/O request unit for issuing said an I/O request to which said

I/O request unit has added host identification information for identifying

said respective host computers, and

an access-right change command unit for transmitting an

access-right change command to said disk device, said access-right

change command including one piece or plural pieces of information

resulting from causing having I/O-enable/disable information and said

host identification information to correspond to each other in a one-to-

one correspondence manner, said I/O-enable/disable information

indicating whether or not said disk device will execute said I/O requests

from said host computers; and

said disk device including: comprising:

an access-right management table for storing and holding said

access-right change commands from said host computers,

an access control unit for identifying said request-source host

computers of said I/O requests, and for judging said execution

enablement/disablement for whether to enable/disable said I/O

requests to be executed on each host-computer basis, from based

upon said host identification information and said access-right

management table, and

an access-right change unit that, in accordance with said

access-right change commands from said host computers within said

access-right management table, changes in a batch of said I/O-

enable/disable information on each host-computer basis, within said

access-right management table,

said disk device judging said execution enablement/disablement for whether

to enable/disable said I/O requests on each host-computer's node basis, with said

host computers being said I/O request sources.

9. (Currently Amended) The information processing system according to

Claim 8, wherein

each of said host computers further comprises a path-information

transmission unit for transmitting path information to said disk device, said path

information resulting from causing having said host identification information and

path identification information to correspond to each other, said path identification

information being designed for identifying all of logical paths from said host

computers to said disk device,

said disk device further comprising a path-information management table for

storing and holding said path information transmitted from said path-information

transmission unit in each of said host computers,

said I/O request unit issuing, to said disk device, said I/O request to which

said I/O request unit has added said path identification information,

said access control unit

extracting said path identification information from said I/O

requests transmitted from said host computers, making reference to

said path-information management table ~~thereby~~ to extract said host

identification information corresponding to said path identification

information extracted, and making reference to said access-right

management table ~~thereby~~ to extract said I/O-enable/disable

information with which said host identification information extracted

coincides, and

judging ~~said execution enablement/disablement for~~ whether to

enable/disable said I/O requests to be executed on each host-

computer's node basis.